

#### Abstract of the Disclosure

An orthogonal frequency division multiplexing (OFDM)-based synchronization detection apparatus including a  $2^n$  level quantizing unit quantizing received data samples into levels of  $2^n$ , where  $n$  is an integer greater than or equal to zero (0), and a delaying unit delaying the data samples quantized through the  $2^n$  level quantizing unit by a predetermined number of clocks and outputting data indicative thereof. A shifting unit shifts the output data samples of the  $2^n$  level quantizing unit by an amount corresponding to an exponent of the output data of the delaying unit and a peak detecting unit detects a peak value from sums of outputs from the shifting unit.